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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/824,854 | 04/15/2004 | Chien-Chao Huang | 24061.150/TSM2003-0964 | 6844 |
| 42717 | 7590 | 11/21/2006 | EXAMINER | |
| HAYNES AND BOONE, LLP 901 MAIN STREET, SUITE 3100 DALLAS, TX 75202 | | | DICKEY, THOMAS L | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2826 | |

DATE MAILED: 11/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/824,854

Applicant(s)

HUANG ET AL.

Examiner

Thomas L. Dickey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2006 and 29 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 17-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2004 and 11 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. The amended claim set filed on 04/11/2006 has been entered, and is herein considered.
2. Applicant has asked that the Final rejection mailed 7/18/06 be reconsidered and a new final rejection be mailed, resetting Applicant's time to respond. This has been done, In particular, as per applicant's request, the rejection of claims 17-20 and 22-26 over Montgomery et al. has been re-cast as an obviousness rejection. The finality of the rejection mailed 7/18/06 is withdrawn, and this final rejection takes its place.

Drawings

3. The proposed replacement sheet of drawings, filed on 04/11/2006 has been approved.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

A. Claims 17-27 are rejected under 35 U.S.C. 102(e) as being anticipated by LIN AL. (2005/0224786).

Lin al. discloses a microelectronic device comprising a substrate 210-220 having a plurality 230a-b-c of doped regions therein, comprising diamond or strained silicon; a patterned feature 240a-b, 260a-c located over the substrate 210-220 and over the plurality 230a-b-c of doped regions, the patterned feature 240a-b, 260a,b,c being part of a transistor (note paragraph 0026) and comprising at least one electrode 240a-260a or 240b-260b, the electrode 240a-260a or 240b-260b being situated proximate the plurality 230a-b-c of doped regions; and a silicon germanium or strained silicon comprising sill 260a or 260b, located within the electrode 240a-260a or 240b-260b, the sill 260a or 260b comprising at least one germanium-comprising impurity or at least two distinct and segregated impurities, and adapted for modifying an electrical property of at least one member 230a or 230b (sill 260a is adapted for modifying said electrical property of member 230a, by injecting current into said member; conversely sill 260b is adapted for modifying said electrical property of member 230b, by removing current from said member) adjacent the electrode 240a-260a or 240b-260b, and a second sill 260c

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comprising diamond; wherein the sill 260a or 260b is formed prior to the patterning of the electrode 240a-260a or 240b-260b or the sill 260a or 260b is formed in the electrode 240a-260a or 240b-260b, the electrode 240a-260a or 240b-260b and partially etched to reduce the thickness of the electrode 240a-260a or 240b-260b and the sill 260a or 260b, and wherein the electrode impurity concentration ranges between about 10^{13} atoms/cm³ and about 10^{19} atoms/cm³. Note figure 2 and paragraphs 0028-0030 of Lin al.

B. Claims 17-20 are rejected under 35 U.S.C. 102(e) as being anticipated by ABADDEER et al. (2004/0036118).

Abadeer et al. discloses a microelectronic device, comprising a substrate 202 having a plurality of doped regions 606 and 607 (the doped regions 606 and 607 being source 606 and drain 607); a patterned feature 402-802-805 located over the substrate 202 and over a plurality of doped regions 606 and 607, the patterned feature 402-802-805 being part of a transistor (note paragraph 0085) and comprising at least one electrode 402-802, the electrode 402-802 being situated proximate the plurality of doped regions 606 and 607; and a sill 802, formed prior to the patterning of the electrode 402-802 (note, paragraph 0079, that the material from which both the electrode 402-802 and the sill 802 are formed is laid down prior to the patterning of paragraph 0080) and partially etched (note paragraph 0080) to reduce the thickness of the electrode 402-802 and the

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sill 802, located within the electrode 402-802, the sill 802 comprising at least two distinct and segregated impurities (N-type, note paragraph 0081, and P-type, note paragraph 0082). Note figures 2-8 (showing the process by which Abadeer et al. make the claimed device, Abadeer et al.'s disclosed process having been made relevant by Applicants having claimed that the device is made by certain process steps), paragraphs 0077-0085 figure 9A (side view) and figure 9B (top view) of Abadeer et al.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17-20 and 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over the third (figures 4, 16) and fourth (figures 17,18) embodiments of MONTGOMERY ET AL. (2004/0208454).

The third and fourth embodiments of Montgomery et al. combine to disclose a microelectronic device comprising a substrate 32-34-36 having a plurality 40-44 of doped regions therein, comprising strained silicon (note paragraph 0011); a patterned feature 22 located over the substrate 32-34-36 and over the plurality 40-44 of doped

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regions, the patterned feature 22 being part of a transistor (note, abstract and figure 4, that patterned feature 22 includes a gate region to overly a body region, with a relatively thin dielectric layer interposed between the contiguous portions of the gate and body regions, to allow voltage imposed on the gate region, in order, note figure 18, to modulate current flowing from "source" contact 42-1 to "drain" contact 42-2. The gate, body, and relatively thin dielectric layer, as well as the ability to modulate a current with an applied voltage, identify the disclosed structure as a transistor) comprising at least one electrode 48-52-53, the electrode 48-52-53 being situated proximate the plurality 40-44 of doped regions; and a silicon germanium or strained silicon (note paragraph 0051) comprising sill 52, located within the electrode 48-52-53, the sill 52 comprising at least one germanium-comprising impurity or at least two distinct and segregated impurities, and adapted for modifying an electrical property of at least one member 230a or 230b adjacent the electrode 48-52-53; wherein the electrode impurity concentration ranges between about 10^{13} atoms/cm³ and about 10^{19} atoms/cm³. Note figures 4, 16, 17, 18, abstract, paragraphs 0051-0054, and paragraph 0067 of Montgomery et al.

The applicant's claims 18 and 19 do not distinguish over the Montgomery et al. reference regardless of the process used to form the sill and the electrode, because only the final product is relevant, not the recited processes of forming the sill prior to the

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patterning of the electrode or forming the sill in the electrode and partially etching the electrode to reduce the thickness of the electrode and the sill.

Evidence of motivation to combine two references (or in this case two embodiments of a single reference) is a necessary part of any obviousness analysis. The Federal Circuit recently re-emphasized that "[e]vidence which suggests that the combination of two references would suggest the resulting improvement is one way in which to determine a reason, suggestion, or motivation to combine" *Dystar Textilfarben GmbH et al. v. C.H. Patrick Co. et al.*, No. 05-1088, (Fed. Cir. 10/03/2006) (Slip opinion, available at <http://www.fedcir.gov/opinions/06-1088.pdf>), citing *Ruiz v. A.B. Chance Co.*, 234 F.3d 654 (Fed. Cir. 2000). See also *In re Kahn*, 78 USPQ 1329,1336 (Fed. Cir. 2006) ("In considering motivation in the obviousness analysis, the problem examined is not the specific problem solved by the invention but the general problem that confronted the inventor before the invention was made.... the 'motivation-suggestion-teaching' test asks not merely what the references disclose, but whether a person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, and motivated by the general problem facing the inventor, would have been led to make the combination recited in the claims.... [f]rom this it may be determined whether the overall disclosures, teachings, and suggestions of the prior art, and the level of skill in the art—

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i.e., the understandings and knowledge of persons having ordinary skill in the art at the time of the invention—support the legal conclusion of obviousness.")

In the present case, evidence to combine Montgomery et al.'s third and fourth embodiments may be found in the reference itself. In paragraph 0067, Montgomery et al. state, "figure 18 (the fourth embodiment) illustrates a variation of the structure of figure 17." Earlier in the same paragraph, Montgomery et al. explain that the figure 17 structure is itself a variation of the figure 16 (third embodiment) structure. Given that Montgomery et al. consider the structures of the third and fourth embodiments to be variations of each other, it would have been obvious to one having skill in the art to consider the two embodiments as equivalent structures which may share features.

Response to Arguments

6. Applicant's arguments filed 04/11/2006 have been fully considered but they are not persuasive.

Conclusion

7. Applicant's 4/11/06 amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

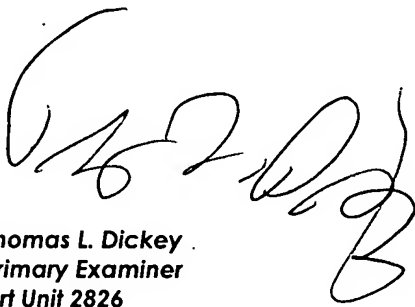
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L Dickey whose telephone number is 571-272-1913. The examiner can normally be reached on Monday-Thursday 8-6.

If attempts to reach the examiner by telephone are unsuccessful, please contact the examiner's supervisors, Wael M Fahmy (571-272-1705) or Robert J. Pascal (571-272-1769). The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or

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Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Thomas L. Dickey
Primary Examiner
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